CS pathshala
Bringing computational thinking to schools

Introduction:

Questions: (* questions can be used for evaluation)

1. Hello, I'm Ram, a tailor. I must cut 15 pieces of cloth - 7 pieces must be 10 inch X 10 inch and 8 pieces must be 8 inch X 8 inch. I must use 36-inch-wide cloth. If I cut the pieces one after the other along the length (as shown in the picture) then I will need (7X10) + (8X8) = 70 + 64 = 134 inches of cloth. Can you minimize the length I need to buy?

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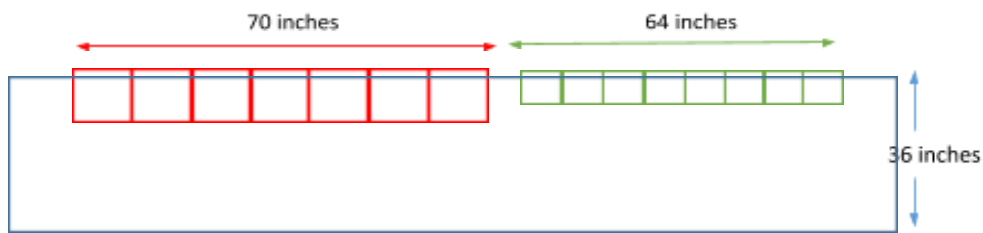
2. Our teacher plays a game in class. She calls out a number that is 10 or less. We must multiply all odd numbers starting from 1 up to the number Teacher calls. The one who answers first gets a toffee! How can I play the game so that I win the most toffees?

 e.g., if Teacher calls 6 we must do 1 X 3 X 5 which is 15

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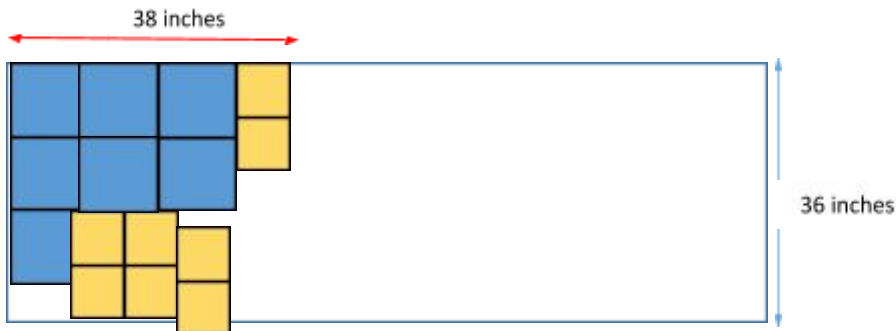
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ANSWERSHEET

1. As shown below – blue squares are 10 X 10 and yellow squares are 8 X 8. Therefore, Ram needs to buy minimum 38 inches length of material.

2. The trick, of course, is to save intermediate results.
   Suppose teacher calls 5. So we need to do 1 X 3 X 5. Write down on a piece of paper:
   1 X 3 = 3
   1 X 3 X 5 = 3 X 5 = 15

   Now suppose teacher calls 8. So we need to do 1 X 3 X 5 X 7. But we already have the answer for 1 X 3 X 5 on our piece of paper. So now we just do 15 X 7 = 105 and we also write down
   1 X 3 X 5 X 7 = 15 X 7 = 105

   Now suppose teacher calls 3. So we need 1 X 3 – we already have the answer on our piece of paper!

   If teacher calls 10. We need 1 X 3 X 5 X 7 X 9. But we already have answer for 1 X 3 X 5 X 7 – it is 105! So we just do 105 X 9 = 945

   By saving intermediate results, our work becomes easy and quick.

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